

Public Pension Review

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Pension Working Group
January 15, 2019

STATE ADM. SYSTEMS → *Overview*

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- The Commonwealth provides pension and retiree health benefits for state/local govt. employees and retirees through six state administered retirement systems:

- Kentucky Employees Retirement System (KERS)
- State Police Retirement System (SPRS)
- County Employees Retirement System (CERS)

*Administered under one entity known as the **Kentucky Retirement Systems (KRS)***

Note: KERS & CERS include both non-hazardous/hazardous duty benefit and contribution structures.

- Teachers' Retirement System (TRS)

Note: TRS includes both university/non-university (teachers) benefit and contribution structures.

- Legislators' Retirement Plan (LRP)
- Judicial Retirement Plan (JRP)

*Administered under one entity known as the **Judicial Form Retirement System (JFRS)***

- All funds have a pension and retiree health fund. TRS also has a life insurance fund.

STATE ADM. SYSTEMS → *Board*

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KRS Board (17 Members)

- 6 elected: KERS (2); CERS (3); SPRS (1)
- 10 appt. by Governor:
 - (6) with “investment experience”
 - (1) knowledgeable about impact of pensions on local govt; and
 - (3) selected from lists submitted by KACO, KLC, KSBA
- 1 Ex-officio: Personnel Secretary

TRS Board (11 Members)

- 7 elected: active teachers (4); retired teacher (1); “lay trustee not of teaching profession” (2).
- 2 appt. by Governor with “investment experience”
- 2 Ex-officio: State School Administrator & State Treasurer

JFRS Board (8 Members)

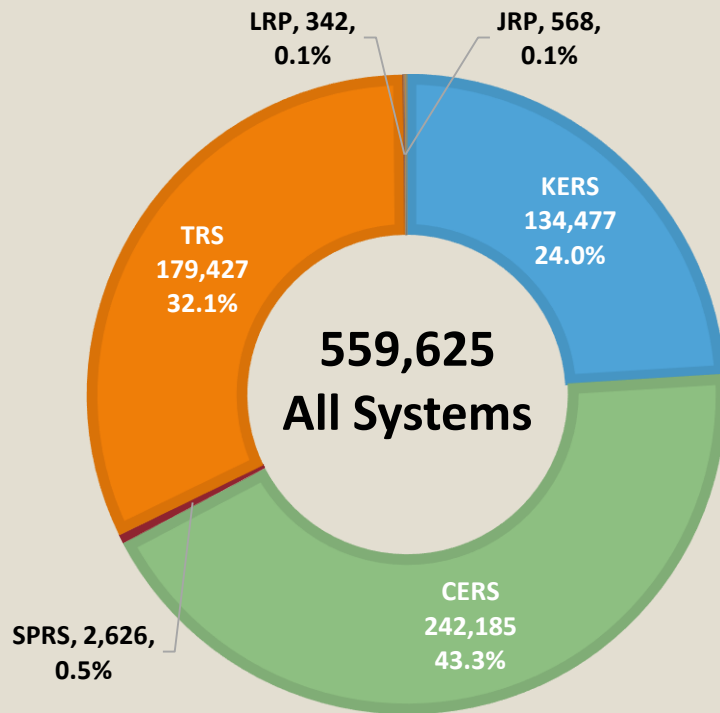
- 3 appt. by Supreme Ct.
- 2 appt. by Governor with “investment experience”
- 1 appt. by the Speaker of the House
- 1 appt. by President of the Senate
- 1 appt. jointly by President & Speaker.

STATE ADM. SYSTEMS → *Overview*

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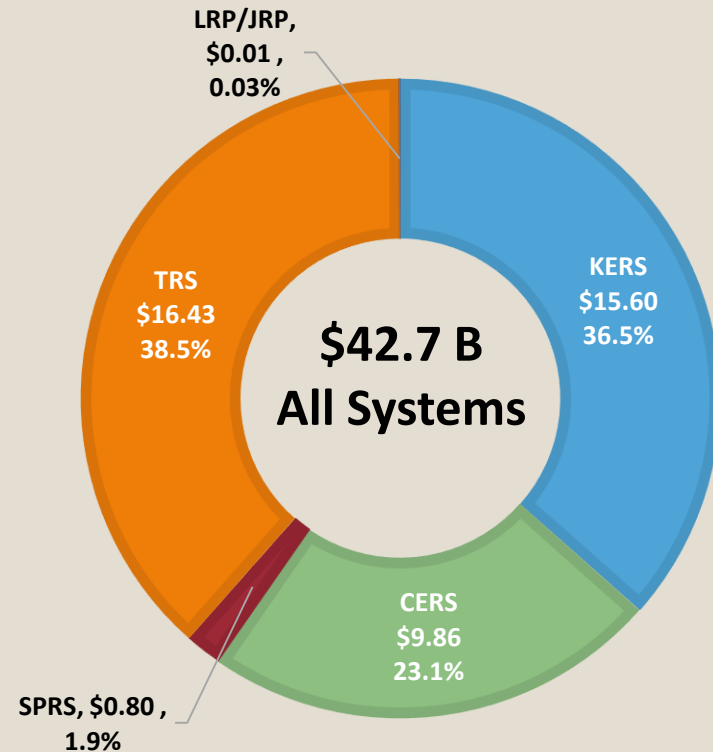
Membership (6/30/2018)

Active, Inactive, & Retired



Unfunded Liabilities (6/30/2018)

Pension & Insurance Combined in Billions of \$



STATE ADM. SYSTEMS → *Membership*

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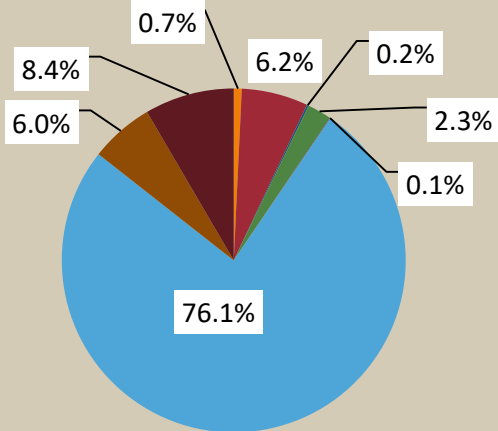
KERS

• Established July 1, 1956 • KRS 61.510 to 61.705 • 348 agencies
• Includes both non-hazardous/hazardous structures.

KERS Membership Numbers (6/30/2018)

Type	KERS NH	KERS H	Total
Active	34,845	3,963	38,808
Inactive	45,768	4,716	50,484
Retired	42,175	3,010	45,185
Total	122,788	11,689	134,477

KERS Membership By Agency Class



- County Attorneys
- Master Commissioner
- Other Retirement Systems
- Regional Mental Health
- Health Departments
- Non-P1 State Agencies
- State Agencies (P-1)
- Regional Univ./KCTCS

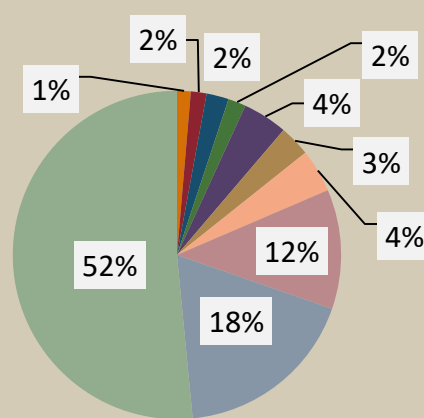
CERS

Established July 1, 1958 • KRS 78.510 to 78.852 • 1,138 agencies • Includes both non-hazardous/hazardous structures.

CERS Membership Numbers (6/30/2018)

Type	CERS NH	CERS H	Total
Active	84,435	9,285	93,720
Inactive	81,608	2,581	84,189
Retired	56,629	7,647	64,276
Total	222,672	19,513	242,185

CERS Membership by Agency Class



- Libraries
- Public Safety (Jails, EMS, P&F)
- Others
- Utility Boards
- Cities*
- Special Districts & Boards
- Circuit Clerks
- Community Action Agy.
- Fiscal Courts
- School Districts

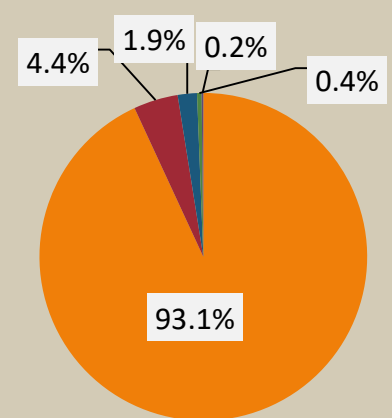
TRS

Created 1938 • KRS 161.220 to 161.716 • 207 agencies • Includes both university/non-university structures.

Membership Numbers (6/30/2018)

Active	72,205
Inactive	52,845
Retired	54,377
Total	179,427

TRS Membership by Agency Class



- School Districts
- State Agencies
- Other
- Universities/KCTCS
- Educ. Coops

STATE ADM. SYSTEMS → *Background*

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Retirement Income

- Sources:
 - Pension/Retirement Plan
 - Social Security (if applicable)
 - Personal Savings/Post-Retirement Employment
- Income Replacement Needed:
 - 75-85% of Pre-Retirement Income
 - Varies based upon factors

Soc. Sec. Coverage

- Coverage
 - Who is Covered? State Employees, most. Local Govt. Employees, classified school employees in CERS, university employees in TRS
 - Who is Not Covered?: Teachers in TRS, some Local Govt. hazardous duty employees (several police & fire personnel)
- Brief Social Security History:
 - 1935: When established, pub. employees not allowed to participate
 - 1950: Congress enacted Section 218 of the Social Security Act to allow states to enter into voluntary agreements to cover state & local gov. employees not covered by a public ret. system.
 - 1951: The state of Kentucky voluntarily established a Section 218 agreement with the federal gov. to authorize Social Security coverage for Kentucky state and local gov. employees.
 - 1954: Social Security extended coverage to most state & local gov. employees covered by a public retirement system, but only if the coverage were agreed to, via referendum, by the members.
 - ✦ KRS 61.430(5) prohibits Ky. from issuing referendums for positions covered by TRS.
 - ✦ TRS considered a “Social Security replacement plan”.
 - Notes: Members not covered can receive Social Security benefits through other covered employment but impacted by WEP/GPO.

STATE ADM. SYSTEMS → Plan Types

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RETIREMENT PLAN TYPES

Defined Benefit Plans

- Benefit based upon a formula (state law) that does not vary with changes in investment markets, life expectancy, etc.
- KRS (KERS, CERS, SPRS):
 - **TIER 1**: Entered system prior to 9/1/2008.
 - **TIER 2**: Entered system on or after 9/1/2008 up to 1/1/2014.
- TRS
- JRP/LRP: Entered system prior to 1/1/2014.

Hybrid Plans

- Often have characteristics of both defined benefit & defined contribution plans.
- KRS (KERS, CERS, SPRS): Cash Balance Plan.
 - **TIER 3**: Entered system on or after 1/1/2014.
- JRP/LRP: Entered system on or after 1/1/2014 (Cash Balance Plan).

Defined Contribution Plans

- Benefit based upon an account balance that does vary with changes in investment markets, life expectancy, etc.
 - 401(k), etc.

KERS/CERS Tier 1 NH Example

Final Compensation	X	Benefit Factor	X	Years of Service	=	Annual Benefit
\$50,000	X	2.0%	X	30 Years	=	\$30,000

Monthly Payment: \$2,500

Note: CB plans are like defined contributions plans in that they have individual accounts, benefits based on an account balance, and some variability in benefits due to investment returns. CB plans differ from defined contribution plans in that a minimum level of investment return is guaranteed, the systems rather than the employee manages funds, and employees can annuitize accounts balance at retirement.

BACKGROUND → *Past Studies*

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Executive Studies

(Benefit/Funding Related)

- The 2007 BR Commission on Public Pensions
 - Gov. Fletcher established
 - Hired outside legal/actuarial consultants
 - Reviewed KRS/TRS
- The 2008 Public Pension Working Group
 - Gov. Beshear established
 - Purpose was to resolve issues not resolved in 2008 SS HB 1 (inv., securities litigation, DC plans, state funding, sep. cities/counties from CERS, etc.).
 - Involved issues with KRS/TRS
 - <https://finance.ky.gov/initiatives/Pages/pension.aspx>
- 2015 KTRS Funding Work Group
 - Gov. Beshear established
 - Hired Outside Actuarial Consultant (Flick Fornia)
 - Reviewed TRS
 - <https://trs.ky.gov/administration/ktrs-funding-work-group/>
- 2017 Adm. Pension Review
 - Gov. Bevin administration
 - PFM hired as consultant
 - Reviewed KRS/TRS/JFRS
 - <https://pensions.ky.gov>

Legislative Studies

(Benefit/Funding Related)

- 2012 Pension Task Force
 - Est. by 202 RS HCR 162
 - PEW/L&J Foundation assisted
 - Reviewed KRS/JFRS
 - <http://www.lrc.ky.gov/Lrcpubs/rm512.pdf>
- PPOB Annual Reports/Information (est. 2013)
 - Committee Info:
<http://www.lrc.ky.gov/committee/statutory/PP%200v.%20Bd/home.htm>
 - Reports:
http://www.lrc.ky.gov/Lrcpubs/lrc_research_memoranda.htm

BACKGROUND → *KRS/JFRS Reform Measures*

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2004 & 2008

- **HB 290 (2004 RS)**
 - Impacted: Primarily new members in KRS
 - Changes:
 - ✦ Retiree health benefit (biggest change). Reduced from % of premium paid to set dollar amt. paid.
 - Retroactive to July 1, 2003 (HB 430 from 2003 removed “inviolable contract” for retiree health for new hires).
 - ✦ New hires: Changed disability benefits; reduced CERS benefit factor from 2.2% to 2.0%.
 - ✦ Service purchase changes.
 - Source: Recommended by KRS Board
- **HB 1 (2008 SS)**
 - Impacted: New hires; retirees (COLA); funding; KRS & JFRS
 - Retiree Changes: Reduced COLA from CPI-U Adj. to flat 1.5%.
 - New Hire Changes (entering 9/1/2008 to 12/31/2014)
 - ✦ Retained defined benefit
 - ✦ For KRS, Inc. retirement eligibility retirements; created “graded” benefit factor that increases as service increases.
 - ✦ For KRS/JFRS: Inc. employee contribution rate by 1% of pay (for retiree health).
 - ✦ For KRS, known as **TIER 2**
 - Funding: Goal to phase-in to full ARC for KERS/SPRS over time.
 - Other: Ended “double dipping”; service purchase changes.
 - Source: Primarily Blue Ribbon Commission

2013

- **SB 2 (2013 RS)**
 - Impacted: New hires; retirees (COLA); funding; KRS/JFRS
 - Retiree Changes: COLA removed prospectively.
 - New Hire Changes (entering 1/1/2014 or after):
 - ✦ Created cash balance plan
 - ✦ Removed service purchases; sick leave, etc
 - ✦ Removed “inviolable contract” for new members except account balance accrued.
 - ✦ Known as **TIER 3**
 - Funding: End phase-in schedule and fully pay ARC for all KRS systems and beginning FY 14; reamortized UL.
 - Other Changes: Expanded KRS Board to include additional appointments; “pension spiking” provisions.
 - Same changes made to LRP/JRP.
 - Source: 2012 Pension Task Force (legislative).

BACKGROUND → *TRS Reform Measures*

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2002 & 2008

- **HB 637 (2002 RS)**
 - Impacted: New hires, retired/re-employed, and members retiring after July 1, 2004; included some benefit increases and decreases.
 - New Hires: For new non-university members on or after July 1, 2002, 2.0% benefit factor if retired with less than 10 years of service, 2.5% if retired with 10+ years of service (previously 2.5% regardless of level of service).
 - Active Members: Board given authority to provide members that retire on or after July 1, 2004 a 3.0% benefit factor for service in excess of 30 years.
 - Retirees:
 - ✦ Minimum annual benefit for each year of service increased to \$400/year effective July 1, 2002 and \$440/year effective July 1, 2003.
 - ✦ Set ad hoc COLA (above 1.5% statutory COLA) at 1.4% for 2002 and 1.5% for 2003.
 - Est new rules for retired/re-employed (created some limitations).
- **HB 1 (2008 SS)**
 - Impacted: New hires
 - For new members July 1, 2008 or after:
 - ✦ Inc. employee cont. rate by 1% of pay to fund retiree health
 - ✦ Provided a graded benefit factor—meaning a lower benefit factor if you retire with less years of service.
 - Source: In part, Blue Ribbon Commission

2010

- **HB 540/531 (2010 RS)**
 - Impacted: Active teachers, local school districts, retirees, state budget
 - Known as the “shared solution”, addressed the growing cost of retiree health benefits; proposed by TRS board Moved from a “pay as you go” funding method to “prefunding” method.
 - Created the following funding sources/changes for retiree health:
 - ✦ Employees: Phased-in increase to active teacher contributions by 2-3% of pay
 - ✦ Employers: Phased-in 3% of pay contribution.
 - ✦ Retirees: TRS board required under 65 retirees to contribute the equivalent of the Medicare Part B premium towards retiree health (with full phase-in by July 1, 2012).
 - ✦ Required additional funding from the state in the form of additional contributions and bonding (bonding was for past monies borrowed from the pension fund to fund retiree health benefits and to provide funding bridge as employee/employer contributions were phased-in over time).
 - Total Bonded Amount: Roughly \$890 M

BENEFITS → *KRS Brief Summary*

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	TIER 1	TIER 2	TIER 3
Plan Type	Defined Benefit	Defined Benefit	Hybrid Cash Balance Plan
Employee Cont.	• NH: 5%; H 8%.	• NH 6%; H 9% (1% goes for ret. Health)	NH 6%; H 9% (1% goes for ret. Health)
Who is Covered	• Participating prior to 9/1/2008	• Participating on or after 9/1/2008 but prior to 1/1/2014	Participating on or after 9/1/2014
Pension Benefit	<p><u>NH</u></p> <ul style="list-style-type: none"> Final Comp: (High-5) B. Factor: 1.97-2.0% (KERS); or 2.2% (CERS) Service: Earned, purchased, sick leave <p><u>H</u></p> <ul style="list-style-type: none"> Final Comp: (High-3) B. Factor: 2.49% (KERS); 2.50% (CERS/SPRS) Service: Earned, purchased, sick leave 	<p><u>NH</u></p> <ul style="list-style-type: none"> Final Comp: (Last 5 complete years) B. Factor: 1.1% to 1.75% based on years of service; 2.0% for years 30 and after Service: Earned, purchased, sick leave (12 months max) <p><u>H</u></p> <ul style="list-style-type: none"> Final Comp: (High-3 complete years) B. Factor: 1.3% to 2.50% based on years of service Service: Earned, purchased, sick leave (12 months max) 	<p><u>NH</u></p> <p>Employee Cont: 5% of pay Employer Credit: 4% of pay Interest Credit: 4% annually plus 75% of the 5- year smoothed excess returns above 4%.</p> <p><u>H</u></p> <p>Employee Cont: 8% of pay Employer Credit: 7.5% of pay Interest Credit: 4% annually plus 75% of the 5- year smoothed excess returns above 4%.</p>
Retirement Eligibility (Unreduced)	<p><u>NH</u></p> <ul style="list-style-type: none"> Age 65/4 years of service; or Any age/27 years of service <p><u>H</u></p> <ul style="list-style-type: none"> Age 55/5 years of service; or Any age/20 years of service 	<p><u>NH</u></p> <ul style="list-style-type: none"> Age 65/5 years of service; or Rule of 87 (min. age 57) <p><u>H</u></p> <ul style="list-style-type: none"> Age 60/5 years service; or Any age/25 years of service 	<ul style="list-style-type: none"> Same as Tier 2. Upon retirement eligibility a member may annuitize their account balance into a lifetime monthly payment or take a refund of their account. Vesting: Immediate employee cont. + int. 5 years for employer cont. + int.
COLA	• NO: Removed in 2013 (SB 2)	• NO: Removed in 2013 (SB 2)	• NO: Removed in 2013 (SB 2)
Retiree Health Benefits	<ul style="list-style-type: none"> Pre 7/2003: Receives percentage of premium based upon service (full at 20 years) 7/2003 & after: Dollar amount for each year of service adj. by 1.5% annually. 	<ul style="list-style-type: none"> Dollar amount for each year of service adj. by 1.5% annually. 	<ul style="list-style-type: none"> Dollar amount for each year of service adj. by 1.5% annually.

BENEFITS → TRS Brief Summary

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	Prior to July 1, 2008	On or After July 1, 2008
Plan Type	Defined Benefit	Defined Benefit
Soc. Sec. Coverage	<ul style="list-style-type: none"> • Non-University: No; University: Yes 	<ul style="list-style-type: none"> • Non-University: No; University: Yes
Employee Cont.	<ul style="list-style-type: none"> • Non-University: 12.855% (3.75% to ret. Health) • University: 8.185% (2.775% to ret. Health) 	<ul style="list-style-type: none"> • Same
Benefit	<ul style="list-style-type: none"> • Final Avg. Salary: (High-5); High-3 if at least age 55 w/27 years. Non-university includes sick leave pmts. • Non-University Benefit Factor: 2% or 2.5% for each year of service less than 30; 3.0% for each year of service in excess of 30. • University Benefit Factor: 2%. • Service: Earned, purchased, sick leave (university only) 	<ul style="list-style-type: none"> • Final Avg. Salary: (High-5); High-3 if at least age 55 w/27 years. Non-university includes sick leave pmts. • Non-University Benefit Factor: 1.7% to 2.5% based upon years of service for each year of service less than 30; 3.0% for each year of service in excess of 30. • University Benefit Factor: 1.5% to 2.0% based upon years of service. • Service: Earned, purchased, sick leave (university only)
Retirement Eligibility (Unreduced)	<ul style="list-style-type: none"> • Age 60 w/5 years of service; or • Any age/27 years of service 	Same
COLA	<ul style="list-style-type: none"> • 1.5% annually 	<ul style="list-style-type: none"> • 1.5% Annually
Retiree Health Benefits	<ul style="list-style-type: none"> • Part. prior to 07/02: Full subsidy for member at 20 years; • Part. on or after 07/02: Full subsidy at 27 years service. <p>As part of shared solution, non-Medicare eligible retirees must pay equivalent of Medicare Part B premium in addition to other health costs.</p>	<ul style="list-style-type: none"> • Same as before but member must have at least 15 years of service in order to be eligible for premium subsidies.

ACTUARIAL DATA → *Background*

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INFLOWS

OUTFLOWS

Contributions

Net Inv. Income

Benefits

Expenses

EMPLOYEE

FIXED - by Statute

INCOME

VARIABLE - Dividends, Interest from current assets

Benefits/Refunds

Fixed primarily by statute but also by regulation & board policy.

Expenses

Budget for administrative expenses (relatively small).

EMPLOYER

VARIABLE - based upon actuarial valuation. Known as ARC, ADEC, or ADC

ASSET GAIN/LOSS

VARIABLE - Change in value of assets from prior year

These are the actuarial liabilities.

Often included in actuarial valuation and calculation of ARC

- Retirement Systems hire actuaries to perform a valuation in order to:
 - Estimate the amount of benefits (liabilities) to be paid out in the future
 - ✦ Make assumptions about what happens to the system's money (investment return assumption, member salary growth, medical inflation rates, etc.) & its people (when will people retire, life expectancy after retirement, etc.)
 - Report on the financial health of the systems/plans
 - ✦ Two Key Statistics: Funding Level & Unfunded Liability as of the valuation date
 - Recommend the appropriate level of employer contributions → ARC/ADEC/ADC

ACTUARIAL → 2018 Actuarial Data

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2018 Actuarial Valuation Results

System	Funding Level (%)		Unfunded Liability (\$)	
	Pension	Health	Pension	Health
KERS NH	12.9% ↓	36.4% ↑	\$13.656 B	\$1.548 B
KERS H	55.5% ↑	130.0% ↑	\$0.513 B	-\$0.118 B
CERS NH	52.7% ↓	76.7% ↑	\$6.241 B	\$0.721 B
CERS H	48.4% ↑	74.6% ↑	\$2.471 B	\$0.428 B
SPRS	27.1% ↑	71.6% ↑	\$0.721 B	\$0.075 B
TRS	57.7% ↑	36.3% ↑	\$14.300 B	\$2.127 B
LRP*	97.8% ↑	196.6% ↑	\$0.002 B	-\$0.022 B
JRP*	82.9% ↑	158.7% ↑	<u>\$0.064 B</u>	<u>-\$0.031 B</u>
Sub Total:			\$37.968B	\$4.728B
Combined Total:			\$42.696B	

Source: KRS, TRS, JFRS Actuarial Valuations; *LRP /JRP represent funding level and liability calculated under GASB accounting standards (actual market values)

ACTUARIAL → 2018 Actuarial Data

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- Total Unfunded Liability Declined ↓1.1 Billion
 - Pension up \$0.4B, Insurance down \$1.5B
- Non Hazardous Funds → Represent approx. 90% of Total Unfunded:

KERS - NH

↓ PENSION

- Funding Level: 13.6% to 12.9%
- UL: \$13.5 B to \$13.6 B
 - Retirements > expected
 - Retirees living longer (mortality)
 - Line of duty benefit changes

↑ HEALTH FUND:

- Funding Level: 30.7% to 36.4%
- UL: \$1.9 B to \$1.5 B
 - Premiums < expected

CERS – NH

↓ PENSION:

- Funding Level: 52.8% to 52.7%
- UL: \$6.0 B to \$6.2 B
 - Expected UAL growth
 - Retirements > expected
 - Retirees living longer (mortality)
 - Line of duty benefit changes

↑ HEALTH FUND:

- Funding Level: 66.4% to 76.7%
- UL: \$1.1 B to \$0.7 B
 - Premiums < expected

TRS

↑ PENSION:

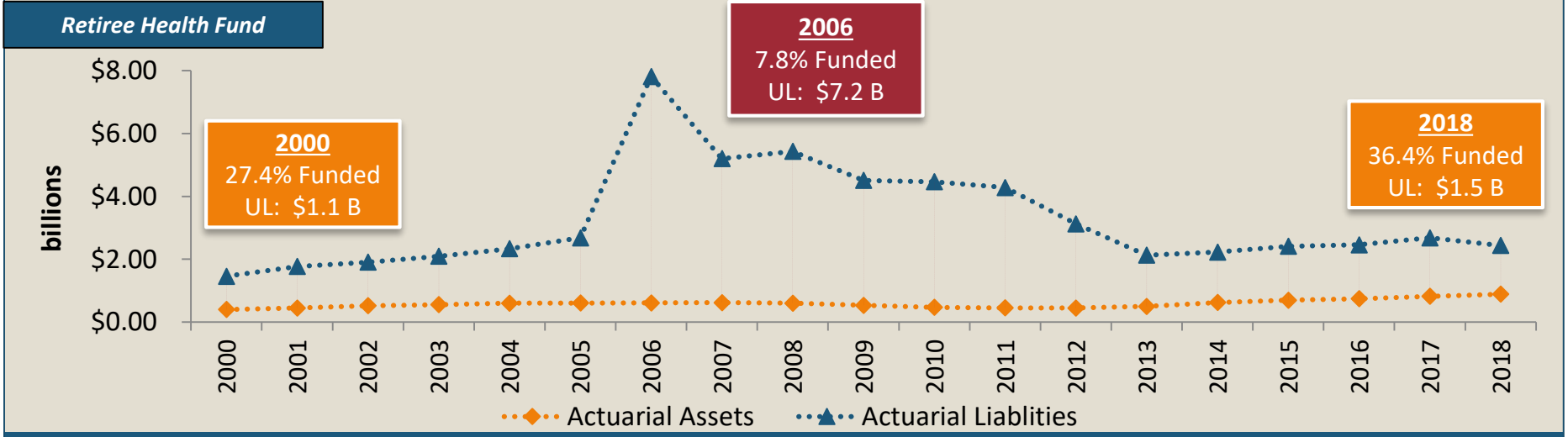
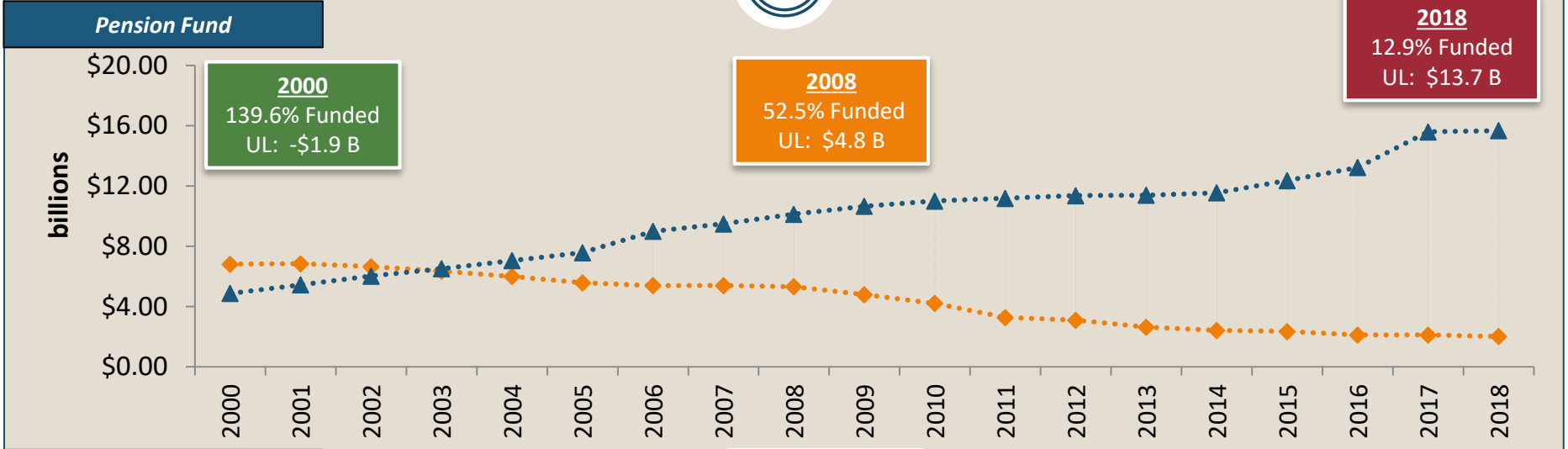
- Funding Level: 56.4% to 57.7%
- UL: \$14.3 B to \$14.3 B
 - Investments > assumed ROR
 - Indiv. salary increases < expected
 - Retirements > expected
 - Retirees living longer (mortality)

↑ HEALTH FUND:

- Funding Level: 26.7% to 36.3%
- UL: \$2.7 B to \$2.1 B
 - Premiums < expected

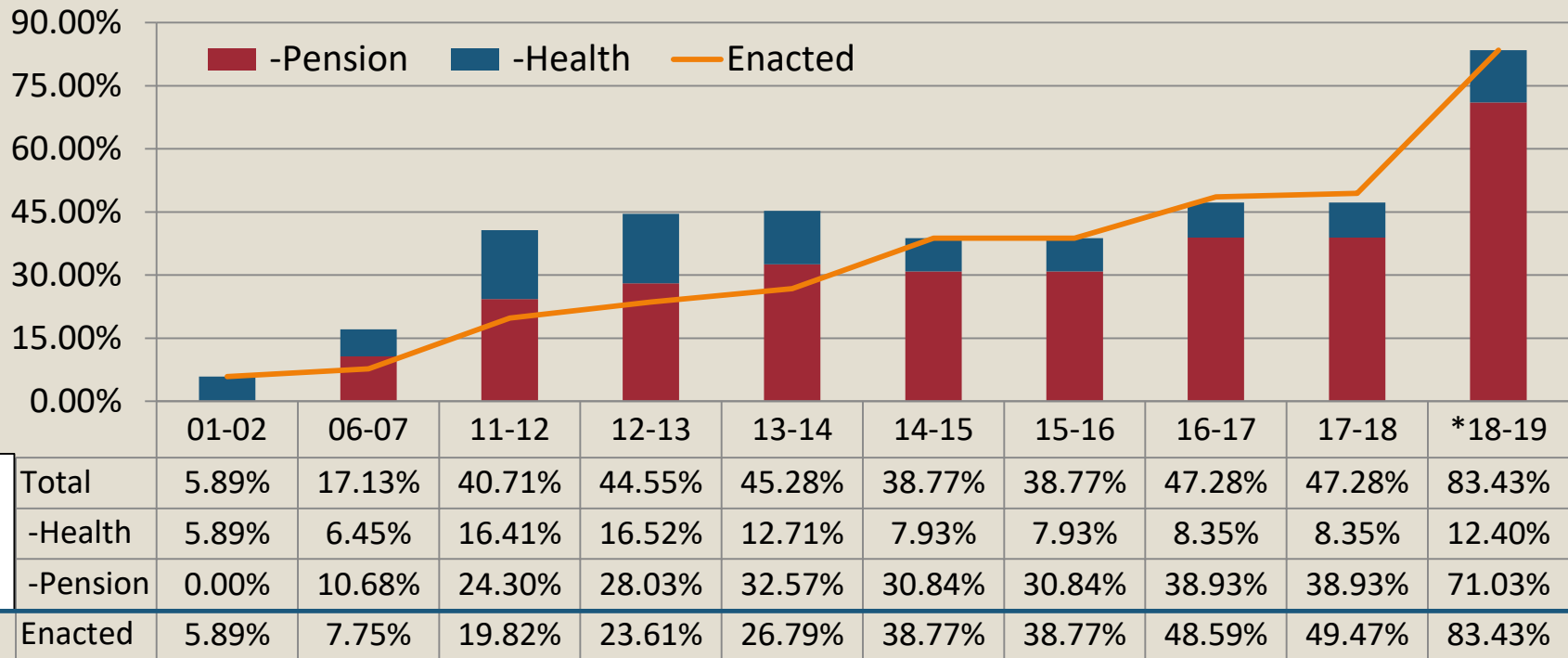
ACTUARIAL DATA → *KERS NH Long-Term Trends*

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◆ Actuarial Assets ▲ Actuarial Liabilities

ACTUARIAL DATA → KERS NH Employer Rates



ARC

Actual (\$) All funds**	FY 18
Pension	\$689 M
<u>Health</u>	<u>\$136 M</u>
Total	\$825 M



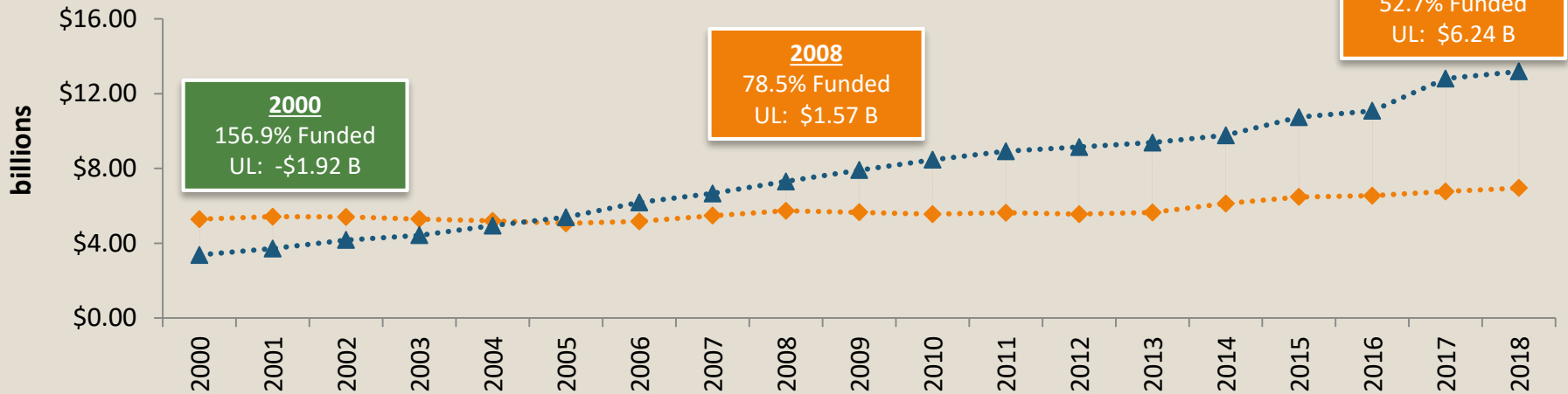
Projections (\$) All funds	FY 19***
Pension	\$940 M
<u>Health</u>	<u>\$167 M</u>
Total	\$1,107 M

*Quasi state agencies (universities, MHRM, etc.) had their rate set at 49.47% for FY 19 only. **Includes GF app/other employer pmts. ***Based on latest KRS Projections.

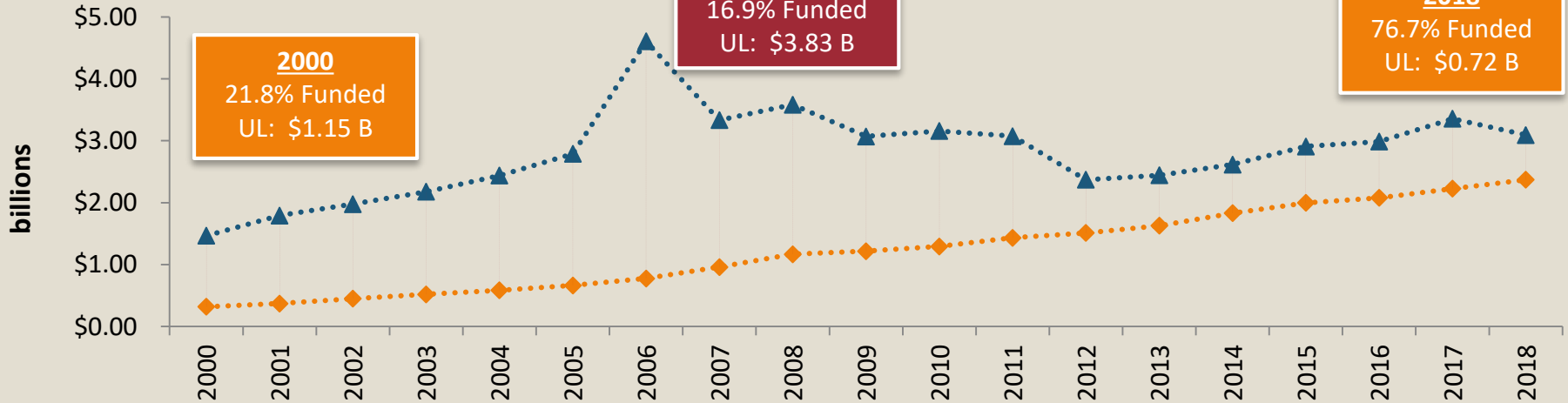
ACTUARIAL DATA → CERS NH

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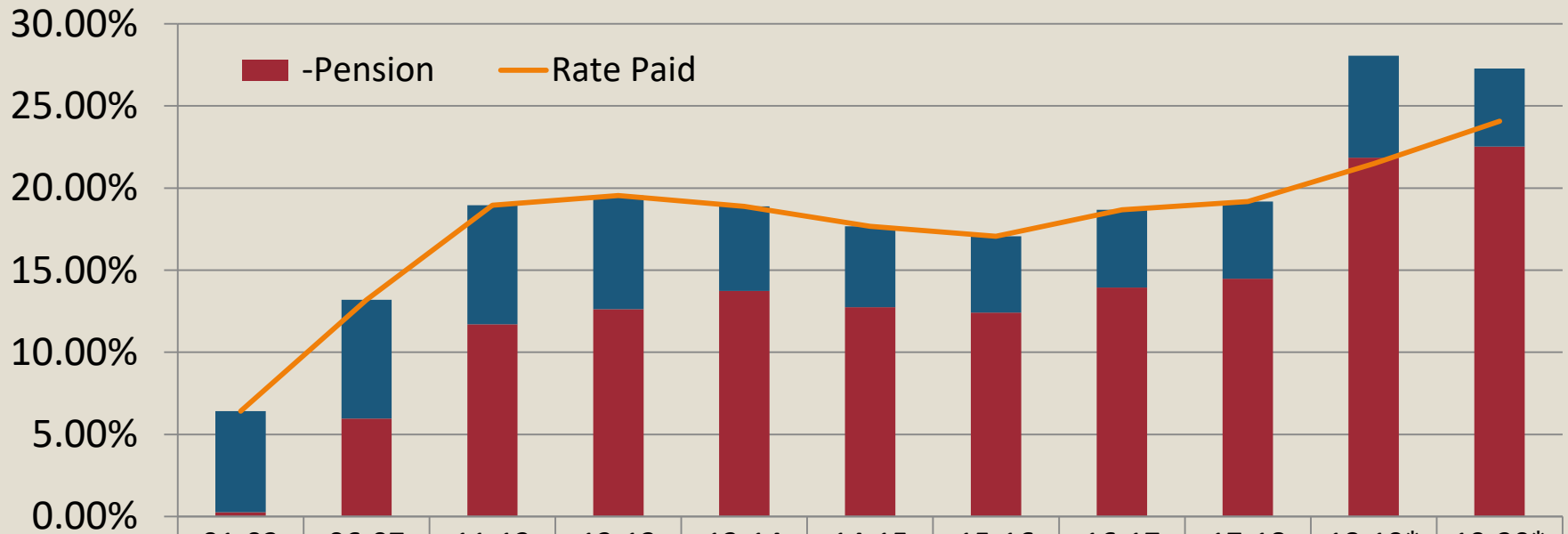
Pension Fund



Retiree Health Fund



ACTUARIAL DATA → CERS NH Employer Rates



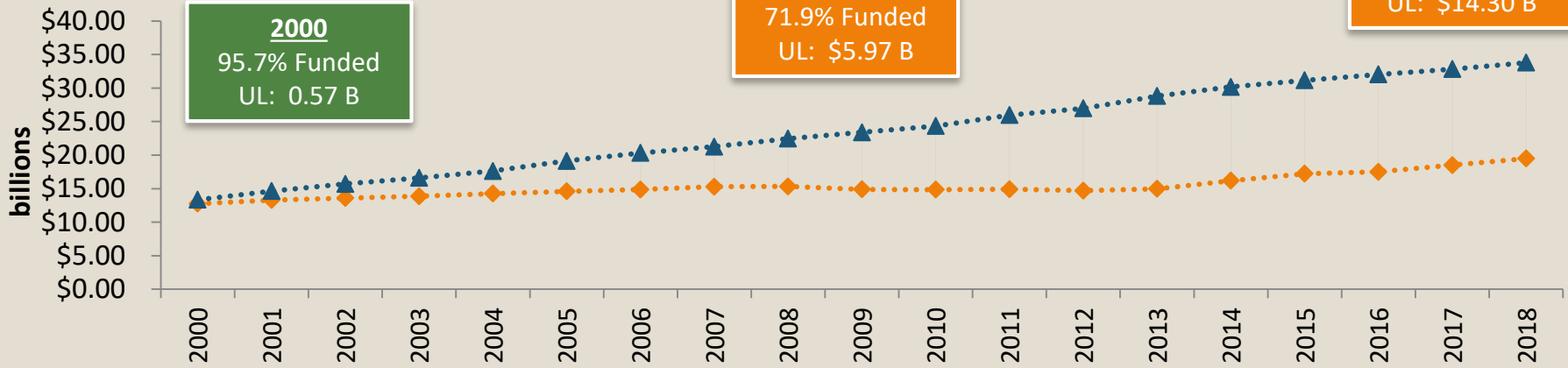
	01-02	06-07	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19*	19-20*
-Health	6.14%	7.22%	7.26%	6.93%	5.15%	4.92%	4.64%	4.73%	4.70%	6.21%	4.76%
-Pension	0.27%	5.97%	11.70%	12.62%	13.74%	12.75%	12.42%	13.95%	14.48%	21.84%	22.52%
Rate Paid	6.41%	13.19%	18.96%	19.55%	18.89%	17.67%	17.06%	18.68%	19.18%	21.48%	24.06%

* During the 2018 Regular Session, House Bill 362 established a schedule to phase in to the full actuarially determined rate beginning in FY 2019. The phase in process limits the increase in employer contribution rates to no more than 12 percent in total dollars annually for the next 10 years.

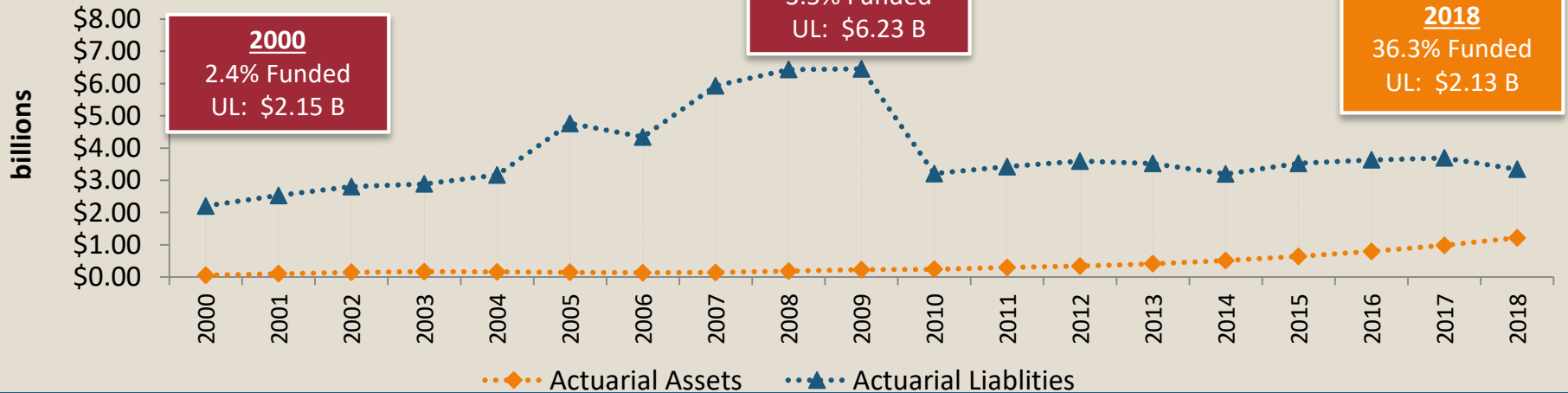
ACTUARIAL DATA → TRS Long-Term Trends

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Pension Fund



Retiree Health Fund

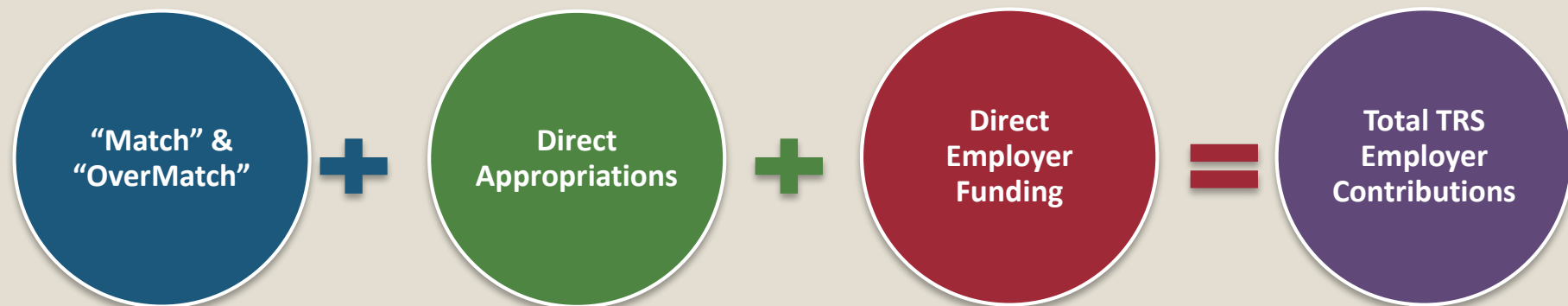


◆◆◆ Actuarial Assets ●●● Actuarial Liabilities

ACTUARIAL DATA → TRS

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- TRS funding mechanism includes:



- Set by statute
- 85-90% GF
- 13.105% of pay for pension and health costs*.
- State pays full costs for non-federally funded certified school board employees.

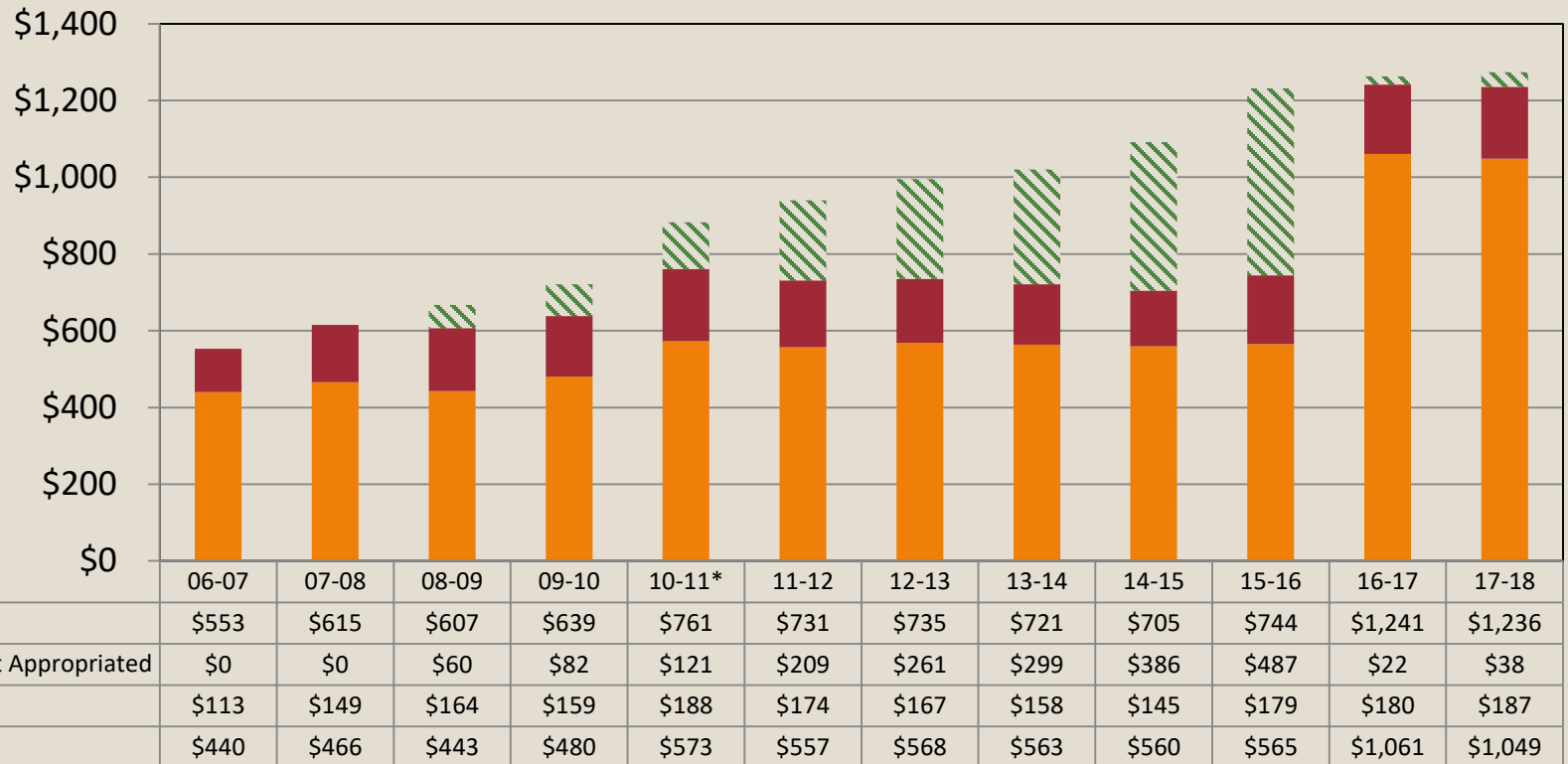
- Set in budget/statute
- 100% GF
- Direct dollar payment to TRS
- Includes:
 1. Amortized pmts. for sick leave, ad hoc COLAs, etc.
 2. State “shared solution” part from 2010 HB 540 (health)
 3. Additional needed to meet “ADEC”. In FY 18--\$474.8 M appropriated.

- Set by statute
- 0% GF
- 3.0% of pay* for retiree health
- Employer “shared solution” part from 2010 HB 540

FY 2018 Actual
\$1.24 Billion

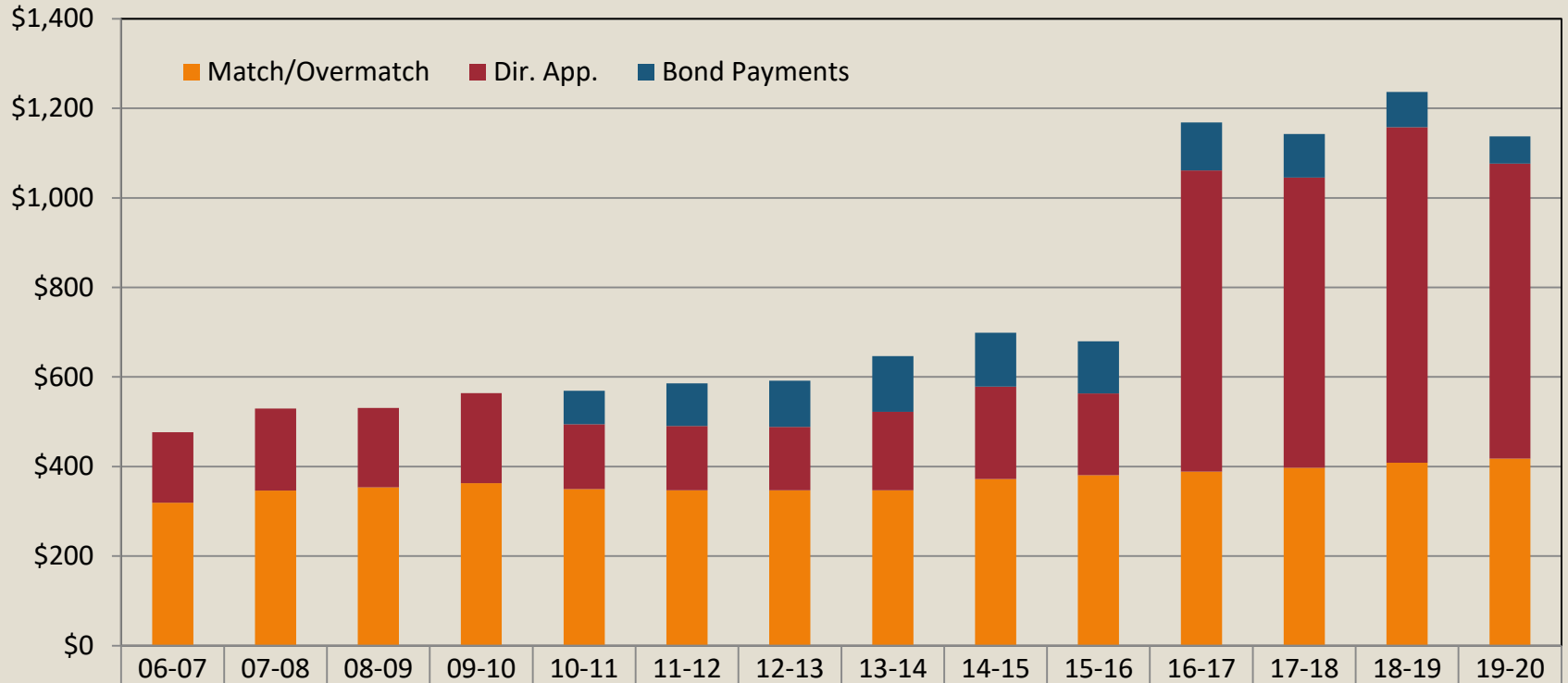
ACTUARIAL DATA → TRS Employer Contributions (All Sources)

22



NOTE: In FY 2011, an additional \$465 million was received as a result of bond proceeds

ACTUARIAL DATA → TRS State Appropriations



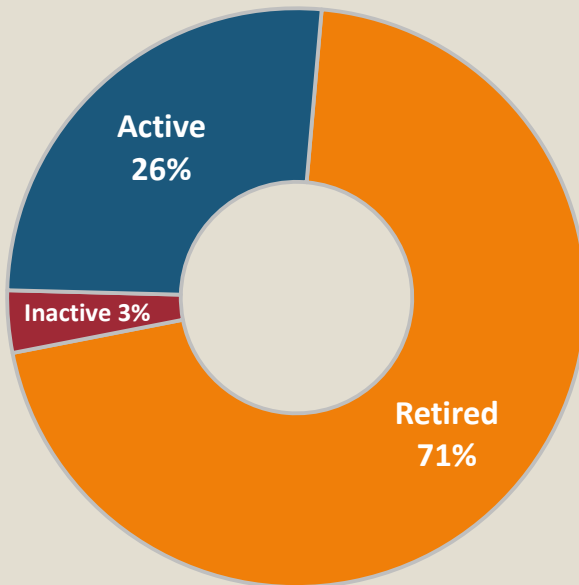
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Total	\$477	\$529	\$531	\$564	\$569	\$586	\$592	\$647	\$699	\$680	\$1,168	\$1,142	\$1,237	\$1,137
Bond Payments					\$75	\$95	\$103	\$125	\$121	\$116	\$107	\$97	\$79	\$61
Dir. App.	\$157	\$183	\$177	\$201	\$145	\$143	\$141	\$175	\$206	\$183	\$672	\$648	\$749	\$659
Match/Overmatch	\$319	\$346	\$353	\$363	\$350	\$347	\$347	\$347	\$372	\$380	\$389	\$397	\$409	\$418

ACTUARIAL DATA → 2018 Actuarial Data

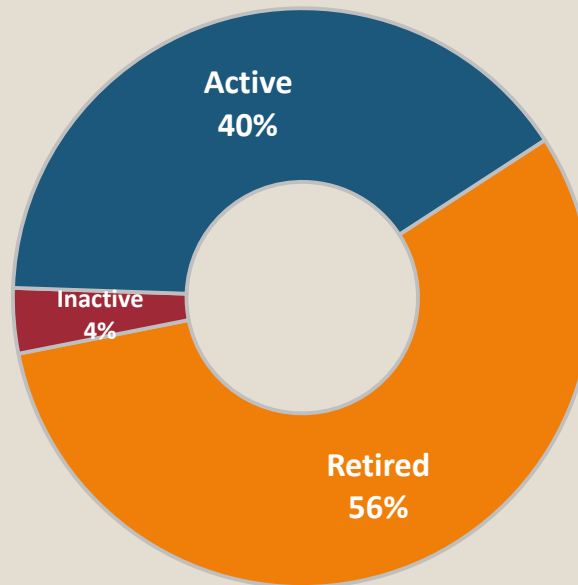
24

- Actuarial Liability by membership:

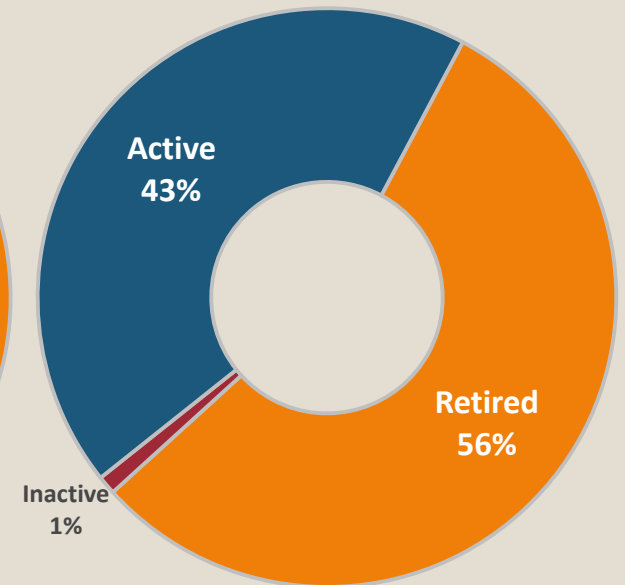
KERS NH



CERS NH



TRS



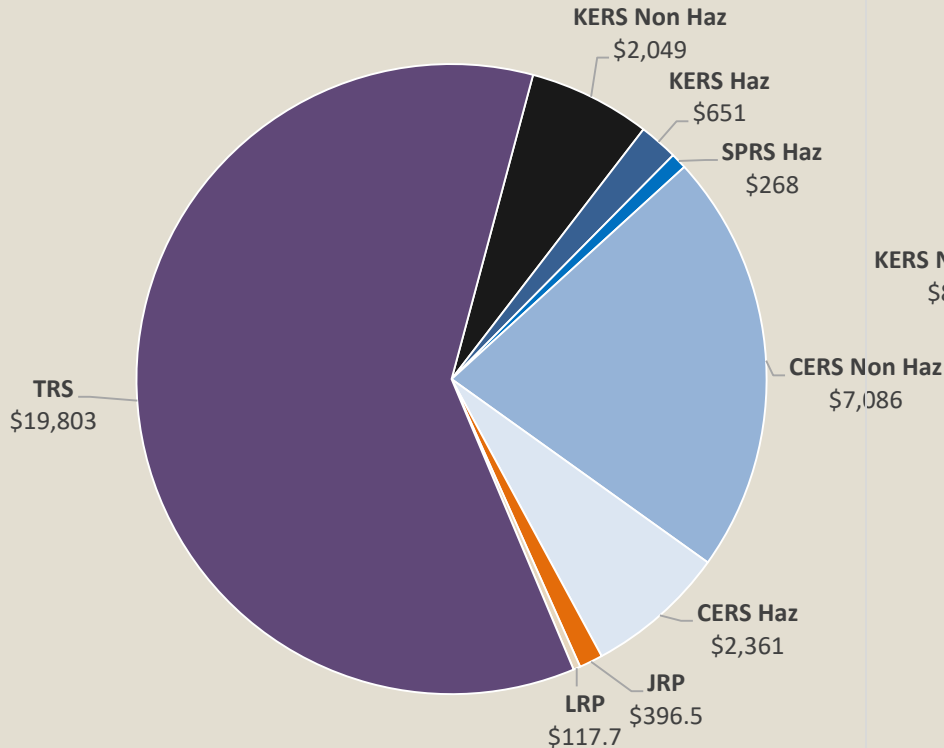
Retired Inactive Active

ASSETS UNDER MANAGEMENT → All KY Plans

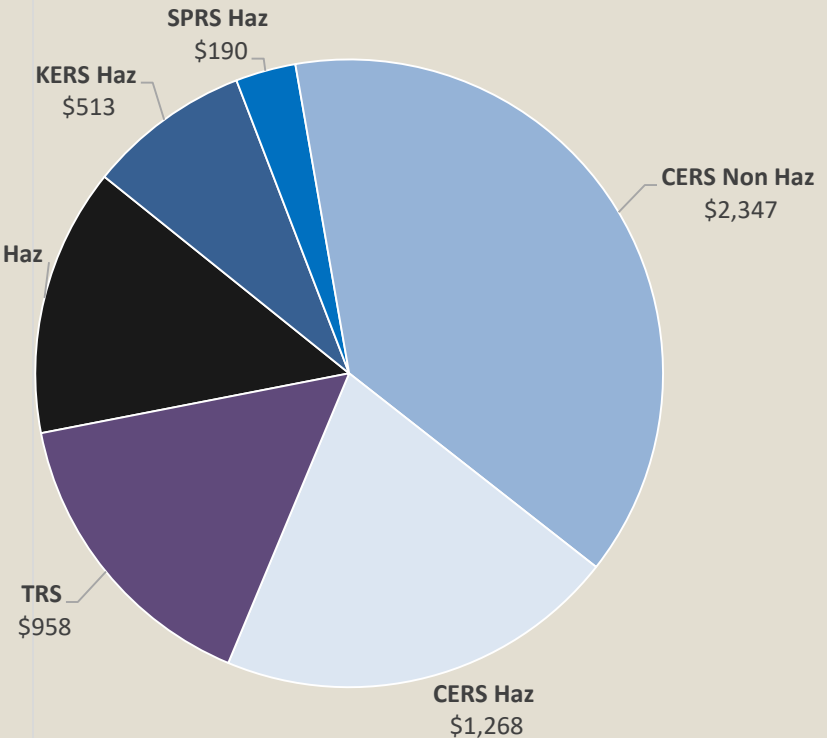
25

Total Assets Under Management - \$38.9 Billion By Retirement Plan As of June 30, 2018

Pension – \$32.7B



Insurance - \$6.2B



* Includes both JRP/LRP pension and insurance assets

ASSET ALLOCATION → *Drives 90% of Returns*

26

	Asset Class	Description	Avg Peer %
Traditional Assets	U.S. Equity	Publicly traded stocks listed on U.S. exchange. Includes Large, Middle, and Small Capitalization companies. Very liquid, but tend to have higher volatility.	50%
	Non-U.S. Equity	Public stocks listed outside U.S. in local currency. Includes developed and emerging countries. Liquid, have higher return & risk expectation than U.S.	
	Fixed Income	Bonds and other assets with yield component. Includes investment grade (high quality), sovereign debt (global), and high yield (riskier) assets. Have lower expected return than equity, but less volatility given income component.	25%
Alternative Assets	Real Estate	Includes both private and public real estate investment trusts (REITs). Larger plans tend to invest in more private real estate, which consists of both core & non-core holdings. Illiquid in nature, but has provided stable returns over time.	25%
	Private Equity/Credit	Includes private equity, venture capital, distressed or other private debt strategies. Generally in form of limited partnership agreements. Illiquid in nature and have long investment horizon (7-12 years). Have higher expected return, but also can exhibit higher levels of risk.	
	Real Return	Includes real assets, such as commodities or timber, as well as inflation-linked securities, such as Treasury Inflation Protected Securities (TIPS). Tend to have low correlation to stocks and bonds. Can be less liquid than traditional assets.	
	Absolute Return	Funds that seek positive return regardless of market condition. Can include equity, fixed income, real estate, commodities, or other assets. Can include buying or "shorting" underlying securities. Expected to provide less volatile stream of positive returns over long term.	

INVESTMENTS → Pension

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<i>As of June 30, 2018</i>	MV	1 –Year	3-Year	5-Year	10-Year	20-Year	AROR²
KERS Pension (N)	\$2.0B	7.5%	6.2%	7.2%	6.0%	5.8%	5.25%
Policy Benchmark		7.2%	6.5%	7.2%	6.3%	5.9%	
KERS-Haz Pension (N)	\$651.2M	8.7%	7.1%	7.7%	6.2%	5.9%	6.25%
Policy Benchmark		8.2%	6.9%	7.5%	6.5%	6.0%	
SPRS Pension (N)	\$268.4M	7.7%	6.1%	7.0%	5.9%	5.8%	5.25%
Policy Benchmark		7.7%	6.5%	7.3%	6.3%	5.9%	
CERS Pension (N)	\$7.1B	8.8%	7.2%	7.7%	6.2%	5.9%	6.25%
Policy Benchmark		8.2%	6.9%	7.5%	6.5%	6.0%	
CERS-Haz Pension (N)	\$2.4B	8.8%	7.2%	7.7%	6.2%	5.9%	6.25%
Policy Benchmark		8.2%	6.9%	7.5%	6.5%	6.0%	
TRS Pension (N)	\$19.8B	10.5%	7.9%	9.2%	7.8%	6.1%	7.50%
Policy Benchmark ¹		9.3%	8.2%	9.0%	7.5%	-	
LRP (N*)	\$117.7M	9.4%	8.6%	10.4%	9.8%	7.0%	6.50%
Policy Benchmark		9.8%	8.7%	9.9%	8.3%	6.1%	
JRP (N*)	\$396.5M	9.4%	8.6%	10.3%	9.8%	7.0%	6.50%
Policy Benchmark		9.8%	8.7%	9.9%	8.3%	6.1%	

Peer Groups Median Returns

LRC Calculated <i>39 plans</i>	8.9%	7.4%	8.3%	6.3%	-
Wilshire TUCS (G)	8.6%	7.3%	8.4%	7.0%	-
BNY Mellon (G)	8.6%		8.2%	6.7%	-

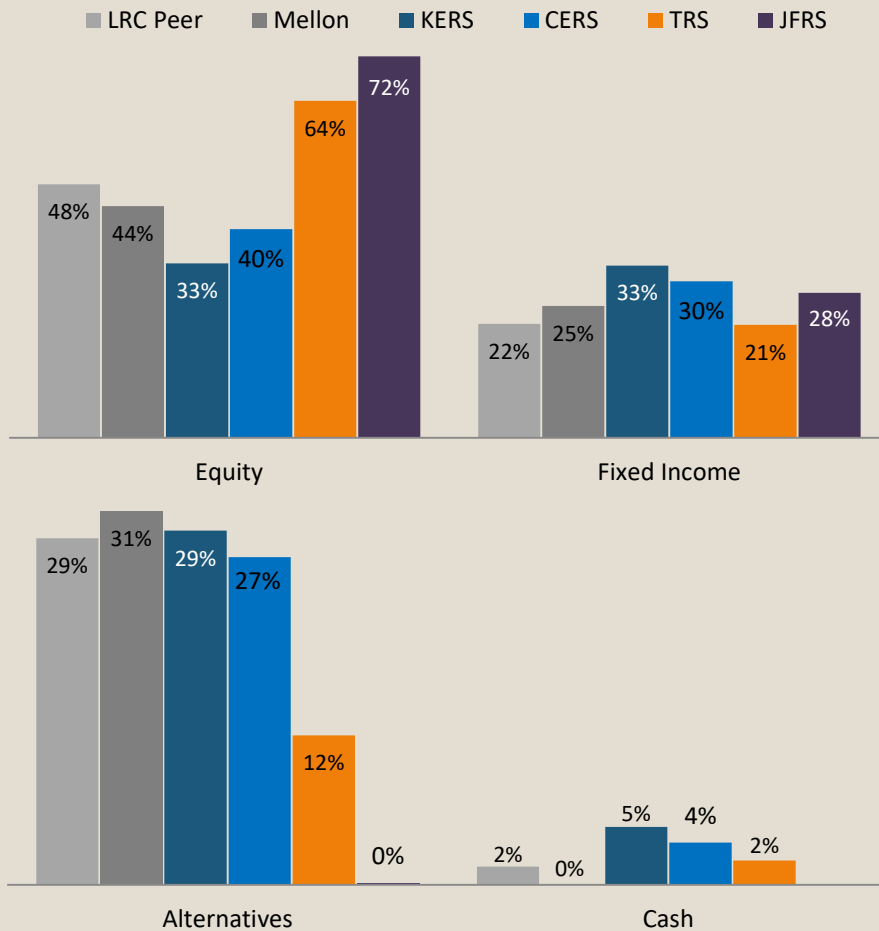
(G) Gross of fee return, (N) Net of Fee Return * JFRS 1- year returns are net of fee, longer term are gross

¹ TRS did not benchmark overall performance prior to July 1, 2008

ASSET ALLOCATION → KY Pension Comparisons

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Peer Comparison



KERS/CERS

- ↓ Less Equity than peers
- ↑ Slightly more Fixed income exposure
- ▤ Alts similar to peer group, has reduced recently

TRS

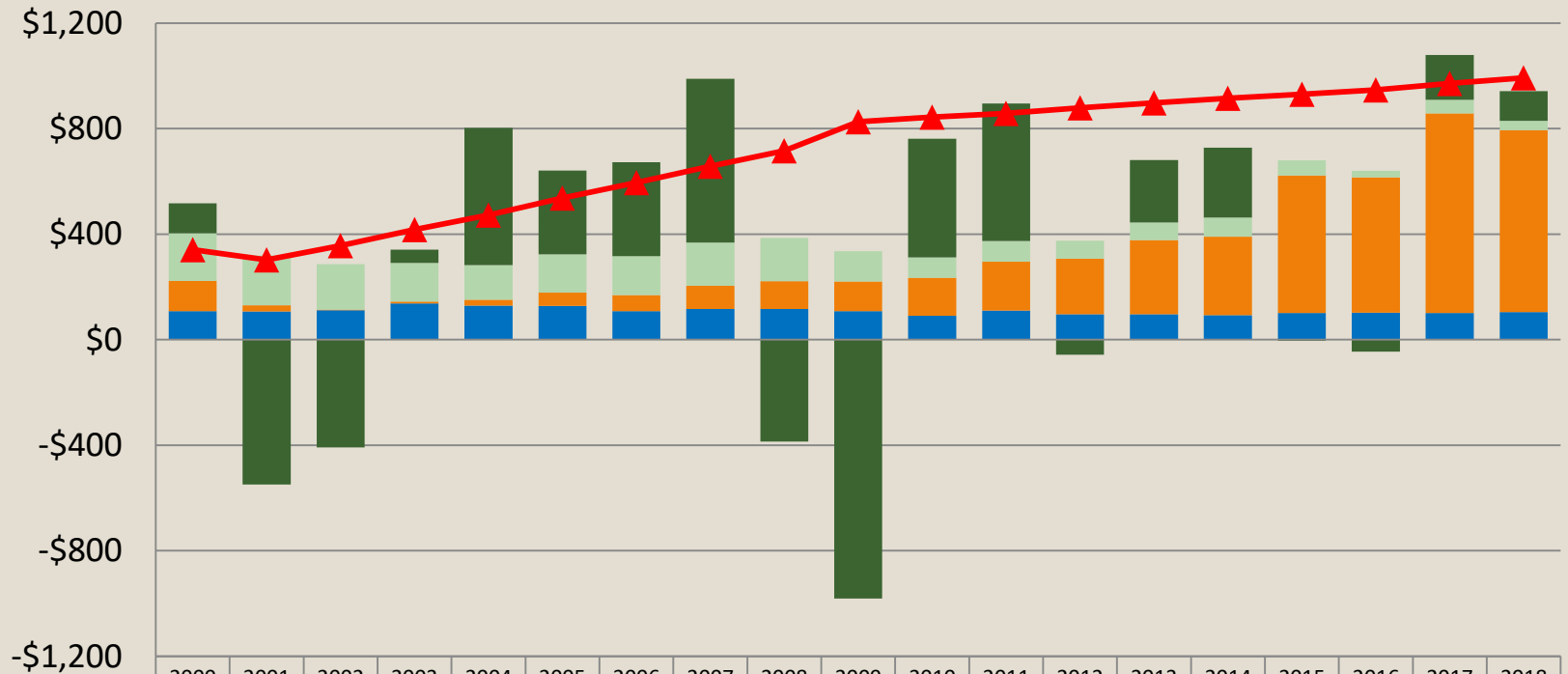
- ↑ Above average equity exposure
- ↓ Growing alternatives, but below peers

LRP & JRP

- ↑ Above average equity allocation
- Only equity & fixed Income
- 🚫 No alternative exposure

NOTE: LRC and Mellon Peer Groups are averages while KRS, TRS, LRP, and LRP are actual as of 6/30/2018

CASH FLOW → *KERS NH Pension Fund*

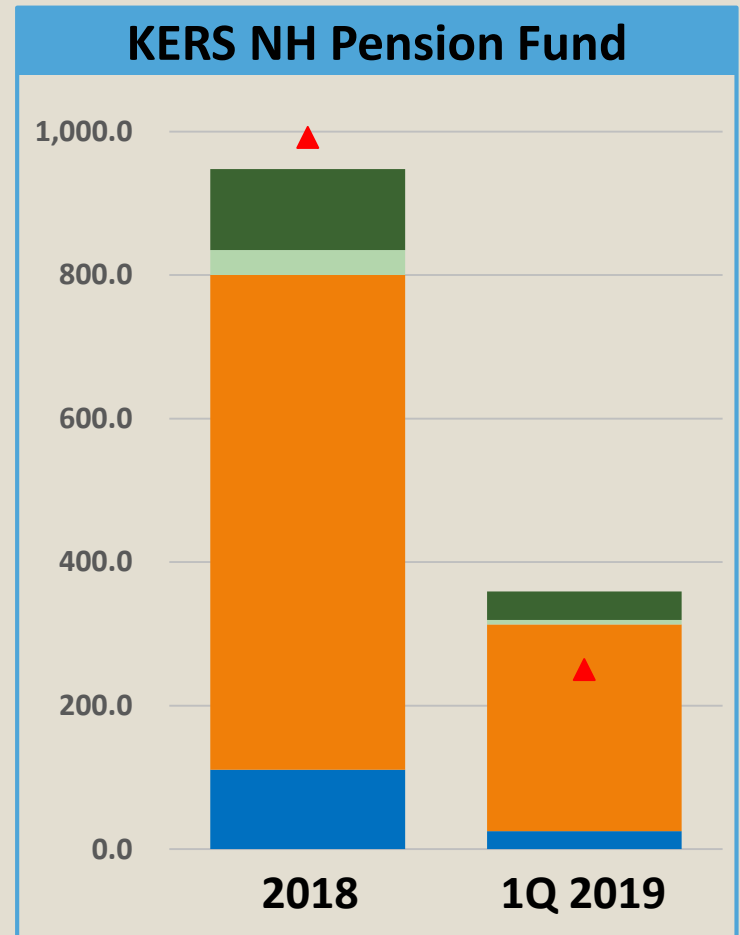


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Plan Assets (Billions)	\$6.02	\$5.48	\$5.01	\$4.93	\$5.26	\$5.36	\$5.44	\$5.77	\$5.06	\$3.58	\$3.50	\$3.54	\$2.98	\$2.76	\$2.58	\$2.33	\$1.98	\$2.09	\$2.05
Asset Gain or (Loss)	\$113	(\$549)	(\$408)	\$50	\$520	\$318	\$356	\$621	(\$386)	(\$982)	\$449	\$521	(\$58)	\$237	\$265	(\$5)	(\$45)	\$170	\$113
Investment Income	\$180	\$189	\$172	\$146	\$132	\$145	\$148	\$164	\$165	\$114	\$77	\$78	\$67	\$66	\$73	\$58	\$25	\$51	\$35
Employer Contributions	\$115	\$23	\$2	\$8	\$22	\$50	\$61	\$88	\$105	\$112	\$144	\$186	\$211	\$281	\$297	\$522	\$513	\$757	\$689
Employee Contributions	\$108	\$107	\$112	\$137	\$129	\$128	\$108	\$116	\$116	\$108	\$91	\$110	\$96	\$97	\$93	\$100	\$102	\$101	\$105
Total Payouts	\$341	\$302	\$357	\$417	\$473	\$537	\$595	\$657	\$716	\$826	\$843	\$858	\$879	\$898	\$915	\$930	\$946	\$971	\$992

CASH FLOW → KERS NH Pension Fund

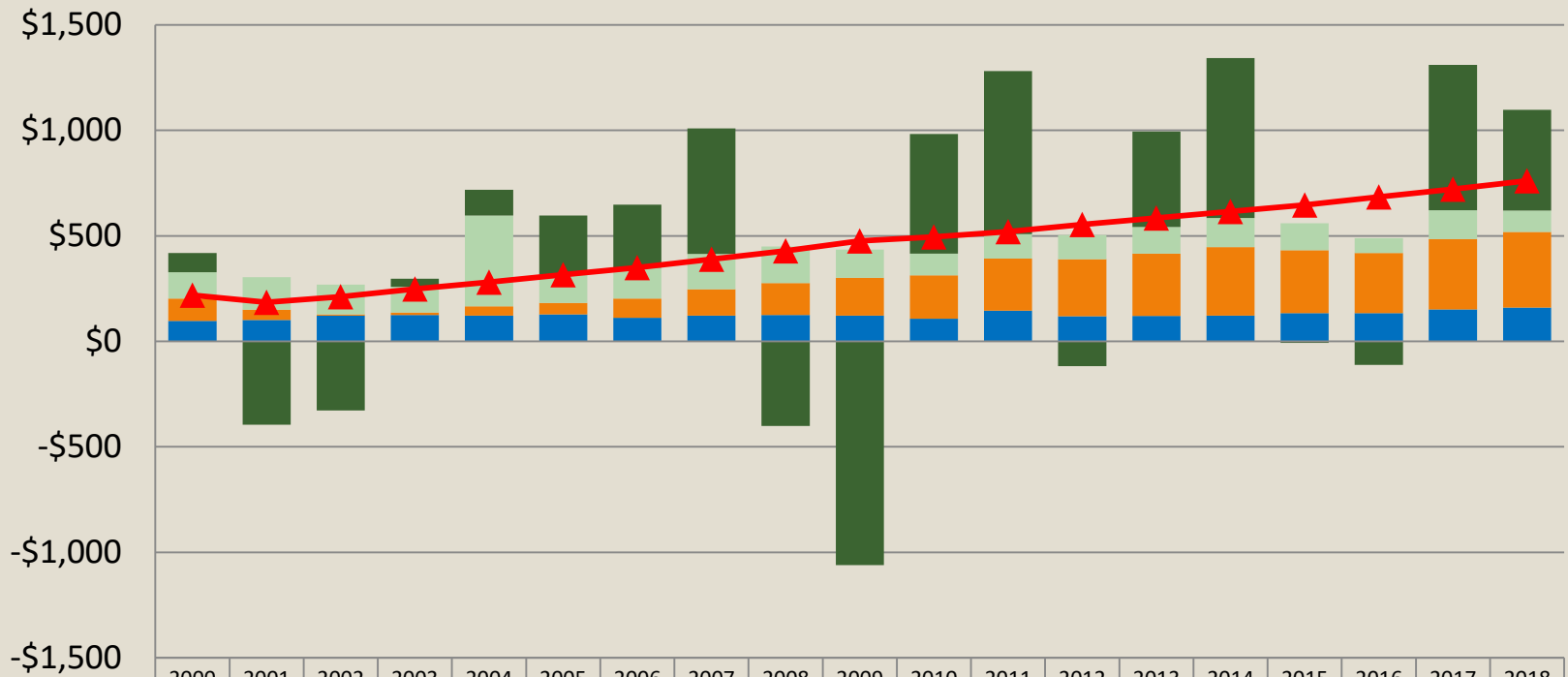
30

KERS NH Pension Fund		
<i>(in millions)</i>	2018	1Q 2019
■ Employee Contributions	\$110.8	\$25.2
■ Employer Contributions	689.1	287.8
■ Investment Income	<u>34.9</u>	<u>6.3</u>
Total Inflows	\$834.8	\$319.3
▲ Total Payouts	\$991.7	\$250.1
Cash Flow <i>(WITHOUT Asset Gains/Losses)</i>	(\$156.9)	\$69.2
■ Asset Gains/(Losses)	\$113.0	\$39.8
Net Cash Flow <i>(including Asset Gains/Losses)</i>	(\$43.9)	\$109.0
Net Plan Assets, Beginning of year	\$2,092.8	\$2,048.9
Net Plan Assets, End of year	\$2,048.9	\$2,157.9



CASH FLOW → *CERS NH Pension*

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	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Plan Assets (billions)	\$4.67	\$4.40	\$4.13	\$4.18	\$4.61	\$4.89	\$5.19	\$5.81	\$5.43	\$4.33	\$4.82	\$5.58	\$5.38	\$5.80	\$6.53	\$6.44	\$6.14	\$6.74	\$7.09
Asset Gain or (Loss)	\$91	(\$395)	(\$327)	\$38	\$122	\$280	\$298	\$595	(\$401)	(\$1,06)	\$567	\$772	(\$117)	\$452	\$757	(\$7)	(\$111)	\$688	\$477
Investment Income	\$125	\$154	\$141	\$122	\$430	\$133	\$146	\$169	\$173	\$133	\$102	\$116	\$114	\$127	\$138	\$128	\$71	\$138	\$102
Employer Contributions	\$107	\$49	\$6	\$12	\$44	\$55	\$91	\$124	\$151	\$179	\$207	\$248	\$271	\$295	\$324	\$299	\$284	\$334	\$358
Employee Contributions	\$97	\$102	\$122	\$125	\$122	\$128	\$112	\$122	\$125	\$123	\$107	\$145	\$119	\$121	\$122	\$134	\$134	\$151	\$160
Total Payouts	\$220	\$185	\$212	\$249	\$281	\$316	\$350	\$389	\$429	\$476	\$495	\$521	\$554	\$584	\$616	\$647	\$684	\$722	\$761

CASH FLOW → CERS NH Pension Fund

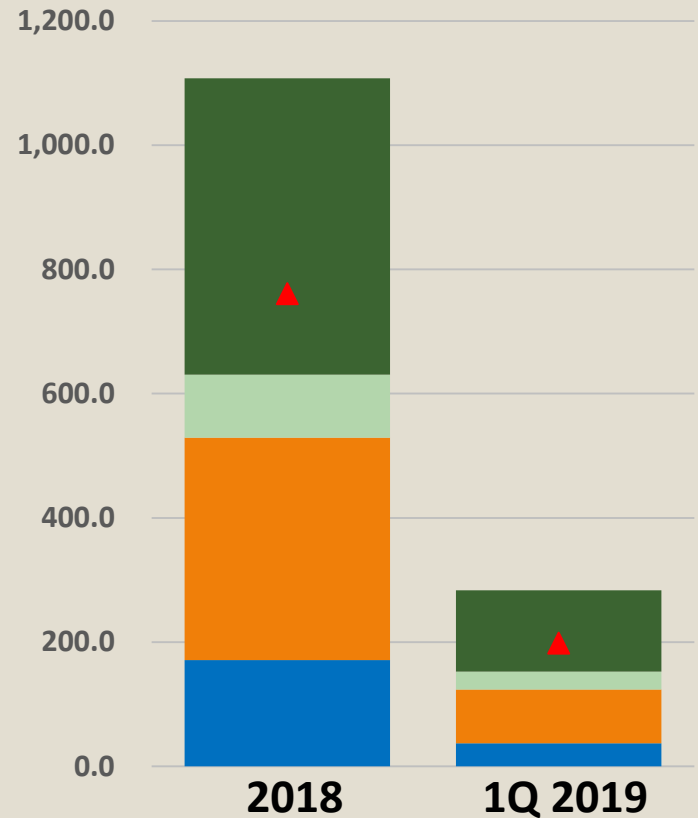
32

CERS NH Pension

(in millions)

	2018	1Q 2019
■ Employee Contributions	\$171.2	\$37.0
■ Employer Contributions	358.0	86.8
■ Investment Income	<u>101.6</u>	<u>28.7</u>
Total Inflows	\$630.8	\$152.85
▲ Total Payouts	\$760.8	\$198.1
Cash Flow (WITHOUT Asset Gains/Losses)	(\$130.0)	(\$45.6)
■ Asset Gains/(Losses)	\$477.2	\$131.0
Net Cash Flow (including Asset Gains/Losses)	\$347.2	\$85.4
Net Plan Assets, Beginning of year	\$6,739.1	\$7,086.3
Net Plan Assets, End of year	\$7,086.3	\$7,171.7

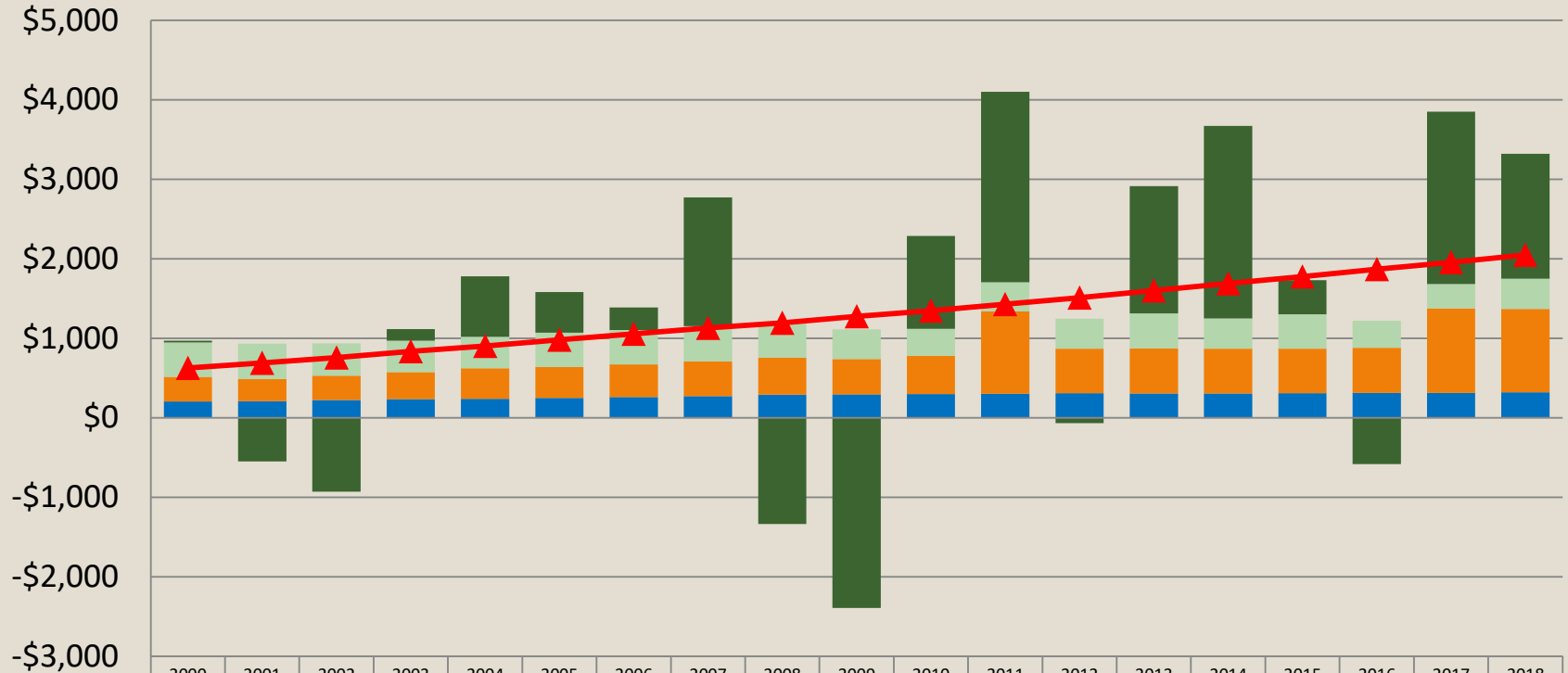
CERS NH



¹ Employee contributions required by HB1 that are used to fund retiree health benefits (2008 SS) have been excluded from cash flow calculations.

CASH FLOW → TRS Pension

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	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Plan Assets (Billions)	\$12.82	\$12.51	\$11.76	\$12.04	\$12.92	\$13.52	\$13.85	\$15.49	\$14.08	\$11.52	\$14.46	\$15.13	\$14.80	\$16.11	\$18.09	\$18.05	\$16.81	\$18.71	\$19.98
Asset Gain or (Loss)	\$24	(\$549)	(\$929)	\$143	\$763	\$512	\$283	\$1,617	(\$1,336)	(\$2,394)	\$1,169	\$2,399	(\$69)	\$1,602	\$2,423	\$429	(\$584)	\$2,167	\$1,574
Investment Income	\$430	\$444	\$409	\$396	\$395	\$434	\$435	\$443	\$427	\$373	\$341	\$362	\$378	\$438	\$380	\$433	\$339	\$309	\$379
Employer Contributions	\$311	\$280	\$304	\$341	\$382	\$388	\$411	\$440	\$466	\$443	\$480	\$1,038	\$557	\$568	\$563	\$560	\$566	\$1,061	\$1,049
Employee Contributions	\$203	\$209	\$224	\$233	\$239	\$247	\$258	\$270	\$291	\$294	\$298	\$302	\$310	\$305	\$305	\$308	\$313	\$314	\$319
Total Payouts	\$626	\$691	\$755	\$833	\$902	\$981	\$1,055	\$1,129	\$1,194	\$1,276	\$1,346	\$1,427	\$1,510	\$1,601	\$1,688	\$1,773	\$1,870	\$1,955	\$2,047

CASH FLOW → TRS Pension Fund

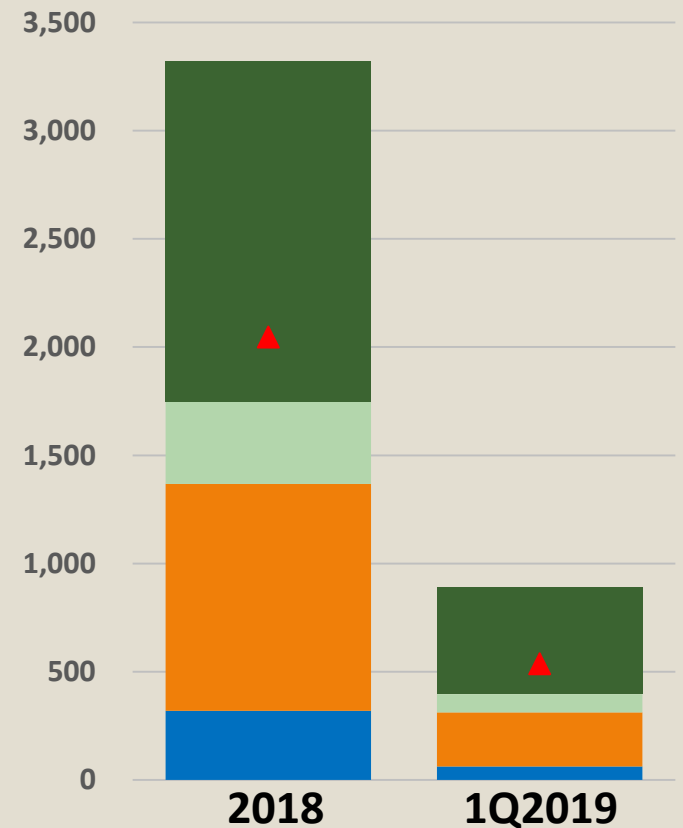
34

TRS Pension Fund

(in millions)

	2018	1Q 2019
■ Employee Contributions	\$319.1	\$61.9
■ Employer Contributions	1,048.7	249.6
■ Investment Income	<u>379.1</u>	<u>85.0</u>
Total Inflows	\$1,746.9	\$396.5
▲ Total Payouts	\$2,047.1	\$537.3
Cash Flow (WITHOUT Asset Gains/Losses)	(\$300.2)	(\$140.8)
■ Asset Gains/(Losses)	\$1,574.1	\$494.1
Net Cash Flow (including Asset Gains/Losses)	\$1,273.9	\$353.3
Net Plan Assets, Beginning of year	\$18,707.7	\$19,981.6
Net Plan Assets, End of year	\$19,981.6	\$20,334.9

TRS Pension Fund



SYSTEMS INFORMATION

35

- KENTUCKY RETIREMENT SYSTEMS

- DAVID EAGER, EXECUTIVE DIRECTOR (502-696-8444)
- KYRET.KY.GOV
- David.Eager@kyret.ky.gov

- TEACHERS' RETIREMENT SYSTEM

- BEAU BARNES, DEPUTY EXECUTIVE DIRECTOR (502-848-8500)
- TRS.KY.GOV
- beau.barnes@trs.ky.gov

- JUDICIAL FORM RETIREMENT SYSTEM

- DONNA EARLY, EXECUTIVE DIRECTOR (502-564-5310)
- KJFRS.KY.GOV